AMENDMENTS TO THE CLAIMS

1-5. (Canceled)

6. (Currently amended) A method of determining susceptibility to bone fracture ~~according to Claim 4,~~ in a Caucasian female subject, the subject comprising:

(i) at least one estrogen receptor α gene comprising a *PvuII* site and a *XbaI* site, wherein the *PvuII* site can exist as a P or p allelic form, and the *XbaI* site can exist as an X or x alleleic form; and

(ii) a vitamin D receptor gene, wherein the vitamin D receptor gene comprises a *BsmI* site, an *ApaI* site and a *TaqI* site, wherein the *BsmI* site can exist as a B or b alleleic form, the *ApaI* site can exist as an A or a allelic form, and the *TaqI* site can exist as a T or t allelic form,

said method ~~further~~ comprising analyzing nucleic acid molecules obtained from the mammalian subject to determine which of the P, p, X and x alleles of the estrogen receptor α gene and which of the B, b, A, a, T and t alleles of the vitamin D receptor are present, wherein the presence of a haplotype comprising the p and x alleles of the estrogen receptor α gene and a haplotype comprising the baT alleles of the vitamin D receptor gene is indicative of an increased susceptibility to bone fracture and further determining the copy number of a member of the group consisting of the P, p, X and x alleles of the estrogen receptor α gene and the B, b, A, a, T and t alleles of the vitamin D receptor gene.

7. (Canceled)

8. (Currently amended) A method according to Claim [[1]] 6, wherein said method is performed *in vitro*.

9. (Original) A method according to Claim 8, wherein said method is performed on a blood or tissue sample of a subject.

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10. (Currently amended) The method of Claim [[1]] 6 wherein the ~~mammalian~~ subject is suffering from low bone mineral density.

11. (Currently amended) The method of Claim [[1]] 6 wherein the ~~mammalian~~ subject has a normal level of bone mineral density.

12. (Currently amended) A method of treating a ~~mammalian~~ Caucasian female subject to prevent or reduce the risk of bone fracture, wherein the ~~mammalian~~ subject comprises:

(i) at least one estrogen receptor α gene comprising a *Pvu*II site and a *Xba*I site, wherein the *Pvu*II site can exist as a P or p allelic form, and the *Xba*I site can exist as an X or x allelic form~~, the method comprising analyzing nucleic acid molecules obtained from the mammalian subject to determine which of the P, p, X and x, alleles of the *PvuII* and *XbaI* sites of the estrogen receptor α gene are present, wherein the presence of a haplotype comprising the p and x alleles is indicative of an increased susceptibility to bone fracture,~~; and

(ii) a vitamin D receptor gene, wherein the vitamin D receptor gene comprises a *Bsm*I site, an *Apa*I site and a *Taq*I site, wherein the *Bsm*I site can exist as a B or b allelic form, the *Apa*I site can exist as an A or a allelic form, and the *Taq*I site can exist as a T or t allelic form,

wherein the presence of a haplotype comprising the p and x alleles of the estrogen receptor α gene and a haplotype comprising the baT alleles of the vitamin D receptor gene is indicative of an increased susceptibility to bone fracture,

said method comprising determining whether the px haplotype of the estrogen receptor α gene and the baT haplotype of the vitamin D receptor gene are present in said subject, and

treating the ~~mammalian~~ subject to reduce the risk of bone fracture if the subject has ~~a haplotype comprising the p and x alleles~~ both said haplotypes, wherein the treatment comprises at least one treatment selected from the group consisting of modifications to lifestyle, regular

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exercise, changes in diet, and administration of a pharmaceutical preparation effective to prevent or reduce the risk of bone fracture.

13-20 (Canceled)

21. (Currently amended) A method of formulating a treatment regimen to decrease the risk of bone fracture in a ~~mammalian~~ Caucasian female subject, wherein said ~~method comprising analyzing nucleic acid molecules of a mammalian subject to determine whether a px haplotype of an estrogen receptor α gene is present, wherein said haplotype is associated with risk of bone fracture, and formulating a treatment regimen to decrease the risk of bone fracture in the mammalian~~ subject comprises:

(i) at least one estrogen receptor α gene comprising a *Pvu*II site and *Xba*I site, wherein the *Pvu*II site can exist as a P or p allelic form, and the *Xba*I site can exist as an X or x allelic form; and

(ii) a vitamin D receptor gene comprising a *Bsm*I site, an *Apa*I site and a *Taq*I site, wherein the *Bsm*I site can exist as a B or b allelic form, the *Apa*I site can exist as an A or a allelic form, and the *Taq*I site can exist as a T or t allelic form,

wherein the presence of a haplotype comprising the p and x alleles of the estrogen receptor α gene and a haplotype comprising the baT alleles of the vitamin D receptor gene is indicative of an increased susceptibility to bone fracture,

said method comprising analyzing nucleic acid molecules of the subject to determine whether both said haplotypes are present in said subject, and formulating a treatment regimen to decrease the risk of bone fracture if said haplotypes are present in said subject.

22-23. (Canceled)

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24. (Currently amended) A method according to ~~any of Claims~~ Claim 21 [[to 23]], further comprising administering an appropriate treatment effective to decrease the risk of bone fracture.

25-28. (Canceled)

29. (Currently amended) A method according to Claim [[1]] 6, wherein the presence of the px haplotype is determined by amplification of a portion of the first intron of the estrogen receptor α gene to yield an amplified fragment, followed by restriction enzyme digestion of the amplified fragment.

30. (Currently amended) A method according to Claim [[29]] 6, ~~further comprising determining the~~ wherein the presence of the baT haplotype of [[a]] the vitamin D receptor gene is determined by amplification of a portion of the vitamin D receptor gene between exon 7 and the 3' untranslated region to yield an amplified fragment, followed by restriction enzyme digestion of the amplified fragment.

31. (New) The method of Claim 6, wherein the subject is homozygous for the baT allele haplotype.

32. (New) The method of claim 12, wherein the subject is homozygous for the baT allele haplotype.

33. (New) The method of Claim 21, wherein the subject is homozygous for the baT allele haplotype.

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